

Kampourakis spells out how these misconceptions arose and presents a model for teaching genetics in a way that breaks down the barrier in communicating about genes.

Overall, *Making Sense of Genes* presents familiar material in an unfamiliar light, keeping non-expert readers engaged without oversimplifying or relying on textbook narratives to explain genetic principles.

Erica Gorenberg
Interdepartmental Neuroscience Program
Yale University

Genomes 4. Fourth edition. By Terence A. (T.A.) Brown. New York, NY: Garland Science; 2017. US \$120.00 (Paperback). 524 p. ISBN: 978-0815345084

With high-throughput sequencing, transcriptomics, and proteomics no longer in their “infancy” as described in the preface by author T.A. Brown, *Genomes 4* offers an expansive review on a broad spectrum of topics in genetics ranging from the central dogma of genes coding for proteins, to the fine technical details of genome mapping. This edition retains the four-part organization from the previous edition: studying genomes, genome anatomies, how genomes are expressed, and how genomes replicate and evolve.

Similar to the 3rd edition, the updated text contains both short answer questions and in-depth problems to assess understanding of the chapter material. While the questions are well-written and generally encompass the chapter material, the answers to the questions seem to be solely an instructor resource, which may make learning the material outside of a course setting difficult. All chapters contain bolded key words that are defined in the glossary section of the textbook, as well as a bulleted summary of the material at the end of each chapter. Although these learning aids may largely serve undergraduate students in exam-based courses, the further reading section also found at the end of each chapter offers advanced students additional articles and research papers that are helpful in pursuing chapter topics in greater detail. The suggested resources from this section are organized and annotated with respect to the major concepts detailed in the chapter, making it easy to pinpoint articles and papers students may find helpful in their studies.

Aesthetically, the figures in the book are colorful, well-designed, and easy to follow. The figures that detail the basic order of relevant biological processes and protocols are cleanly designed in a way that avoids superfluous details and contributes to a better understanding of the material. Images from the book can be downloaded from the publisher’s website (www.garlandscience.com) in

either PowerPoint or JPEG formats.

One of the major strengths of *Genomes 4* is how it utilizes the figures to explain what techniques typical labs or researchers use in their studies. Before jumping into the technical details, however, the book also takes great care in laying out the concepts behind them so as to convey a complete and whole understanding of the techniques and their advantages and disadvantages. Further considerations are given to how different methods compare in terms of their accuracy, resolution, and application context. On top of describing the techniques in detail, the text also gives real-world examples of efforts in science that have used these technologies in order to solve unanswered questions.

With this in mind, *Genomes 4* is a great resource for students wanting to understand genomes and the tremendous advancements in the field that have been made over the past decade since the previous edition.

Ian Gonzalez
Department of Cell Biology
Yale School of Medicine

Developmental Biology. Eleventh Edition. By Scott F. Gilbert and Michael J. F. Barresi. Sunderland, MA: Sinauer Associates, Inc; 2016. US \$155.95 (Hardcover). 810 p. ISBN: 978-1605354705

The task of educators to impart a comprehensive understanding of organisms and their creation can seem daunting. This is especially the case in the era of advanced technology, with the challenge of capturing the attention of students who are accustomed to entertainment and social media at their disposal. The authors of *Developmental Biology, Eleventh Edition* have proven to adapt to this reality, by combining thorough text with online learning to allow for an in-depth exploration of its material.

Developmental Biology is divided into seven parts, within which there are a total of 26 chapters to further expand on the given topics. These include: “Part I: Patterns of Processing of Becoming;” “Part II: Gametogenesis and Fertilization;” “Part III: Early Development;” “Part IV: Building with Ectoderm;” “Part V: Building with Mesoderm and Endoderm;” “Part VI: Postembryonic Development;” and “Part VII: Development in Wider Contexts.” Part I offers a framework for understanding animal development, which leads the reader to Part II’s exploration of the circle of sex, in terms of sex determination and the beginning of creating new organisms. Part III discusses cleavage, gastrulation, and axis formation, while Part IV elaborates on the vertebrate nervous system and epidermis. Part V focuses on organogenesis, with sections devoted to limb

anatomy and the formation of digits and joints. Part VI concentrates on metamorphosis, regeneration, as well as aging and senescence. Part VII addresses the relevance of development, with respect to health and disease, the environment, and evolution.

Several features of the eleventh edition are designed to engage readers as much as possible. For example, there is an “interactive guide” online, created to be a complement to the text. In addition to full video instruction, the associated site offers Powerpoint slides, a glossary, laboratory manuals, and study questions to help understand development as a whole. Of note, the “Dev tutorials” grant access to presentations by the authors themselves. The user-friendly lessons are also utilized in the content of the physical book itself, with descriptive and well-placed illustrations that are dispersed throughout the text. Each part has an “opening question and photo” along with a “punchline,” which prompts readers to think about the principles of the given section. As one delves into the topic at hand, there are “developing questions” and “next step investigation” points that are highlighted. Moreover, at the end of each chapter there are “closing thoughts on the opening photo” and a “snapshot summary,” which give a broader perspective on the areas under discussion.

Developmental Biology, Eleventh Edition successfully teaches the basis of development in a manner that is digestible and intriguing. It is useful for students who enjoy traditional as well as modern approaches to pedagogy. By systematically reviewing concepts in development, integrating web resources, and providing expansive applications about the subject matter, the textbook is valuable for readers interested in the field.

Jessica S. Bayner M.D.
Child and Adolescent Psychiatry Fellow
Harvard Medical School
Boston Children’s Hospital